

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
22 April 2004 (22.04.2004)

PCT

(10) International Publication Number  
WO 2004/034052 A1

(51) International Patent Classification<sup>7</sup>: G01N 33/487, C12M 1/34

(21) International Application Number:  
PCT/CA2003/001516

(22) International Filing Date: 9 October 2003 (09.10.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
60/416,912 9 October 2002 (09.10.2002) US

(71) Applicant (for all designated States except US): ST. BONIFACE GENERAL HOSPITAL [CA/CA]; 351 Tache Avenue, Winnipeg, Manitoba R2H 2A6 (CA).

(72) Inventor; and

(75) Inventor/Applicant (for US only): HRYSHKO, Larry [CA/CA]; 351 Tache Avenue, Winnipeg, Manitoba R2H 2A6 (CA).

(74) Agent: ADE & COMPANY; 1700-360 Main Street, Winnipeg, Manitoba R3C 3Z3 (CA).

(81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

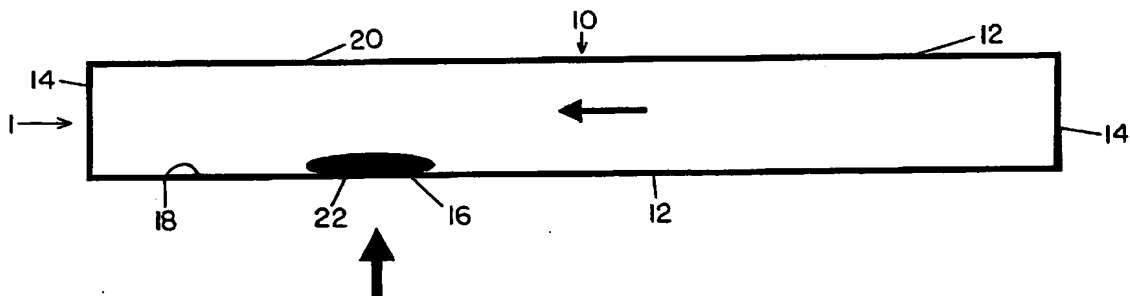
(84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

**Published:**

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: HIGH THROUGHPUT ASSAY SYSTEM



(57) Abstract: A device and a method that permits rapid application of experimental solutions to both (i.e. intracellular and extracellular) surfaces of a membrane patch is described. In one embodiment, this is accomplished by mounting a membrane patch on a hole through the side of a hollow tube such that one surface can be readily perfused on the outside of the tube while simultaneously perfusing the inside of the tube. Thus, by measuring changes in membrane traffic using any of a variety of means known in the art, it is possible to determine the effect of test compounds presented to the intracellular and/or extracellular surface on membrane traffic. As can be seen, the instant device and method have the advantage of allowing both sides of the membrane to be accessed simultaneously, as described below. This is in contrast to existing patch clamp techniques where only a single membrane surface is readily accessible

## INTERNATIONAL SEARCH REPORT

International Application No.

PCT/CA 03/01516

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 G01N33/487 C12M1/34

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C12M

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 02/29402 A (SOPHION BIOSCIENCE AS) 11 April 2002 (2002-04-11) abstract page 31, line 34 - page 32, line 13; figure 8	1-5
A	US 2002/064841 A1 (REED MARK A ET AL) 30 May 2002 (2002-05-30) paragraphs '0007!, '0066!, '0069!, '0070!; figures ----- -/--	1-5

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

## \* Special categories of cited documents:

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the international filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date but later than the priority date claimed

- \*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- \*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- \*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- \*&\* document member of the same patent family

Date of the actual completion of the international search

23 March 2004

Date of mailing of the international search report

31/03/2004

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2280 HV Rijswijk  
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
Fax: (+31-70) 340-3016

Authorized officer

Savage, J

# INTERNATIONAL SEARCH REPORT

International Application No.

PCT/CA 03/01516

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	MOSBACHER J ET AL: "STUDYING MEMBRANES WITH SCANNING FORCE MICROSCOPY AND PATCH-CLAMP TECHNIQUE" JOURNAL OF VACUUM SCIENCE AND TECHNOLOGY: PART B, AMERICAN INSTITUTE OF PHYSICS. NEW YORK, US, vol. 14, no. 2, 1 March 1996 (1996-03-01), pages 1449-1452, XP000621741 ISSN: 0734-211X the whole document	1
X	WO 01/94939 A (SILVERTHORNE ANDREW ; CENES LTD (GB); OWEN DAVID (GB)) 13 December 2001 (2001-12-13) the whole document	1-5
A	WO 01/48475 A (DODGSON JOHN ; ASTRAZENECA UK LTD (GB); ASTRAZENECA AB (SE); THOMSEN L) 5 July 2001 (2001-07-05) page 5, line 1 - page 7, line 2; figures	1-5

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/CA 03/01516

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 0229402	A	11-04-2002	AU 9367601 A	15-04-2002
			CA 2424498 A1	11-04-2002
			CN 1476536 T	18-02-2004
			WO 0229402 A2	11-04-2002
			EP 1322955 A2	02-07-2003
			US 2002063067 A1	30-05-2002
<hr/>				
US 2002064841	A1	30-05-2002	AU 3499601 A	20-08-2001
			EP 1257816 A1	20-11-2002
			WO 0159447 A1	16-08-2001
<hr/>				
WO 0194939	A	13-12-2001	AU 6252101 A	17-12-2001
			CA 2411845 A1	13-12-2001
			EP 1290441 A1	12-03-2003
			WO 0194939 A1	13-12-2001
			US 2003129581 A1	10-07-2003
<hr/>				
WO 0148475	A	05-07-2001	AU 2204201 A	09-07-2001
			EP 1250596 A1	23-10-2002
			WO 0148475 A1	05-07-2001
			JP 2003518623 T	10-06-2003
			US 2003121778 A1	03-07-2003
<hr/>				